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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/724,655	11/28/2000	Dennis M. Adderton	1267.007	7710

7590 12/07/2001

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EXAMINER

DICKENS, CHARLENE

ART UNIT PAPER NUMBER

2855

DATE MAILED: 12/07/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/724,655

Applicant(s)

ADDERTON ET AL.

Examiner

Ex. Dickens

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-- Th MAILING DATE of this communication appears on th cover sh t with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 5-1-01 & 6-1-01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 and 29-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 28-70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2000 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 178. Correction is required.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 83, 85. Correction is required.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371c of this title before the invention thereof by the applicant for patent.

4. Claims 1-5, 7-17, 19-23 and 29-70 rejected under 35 U.S.C. 102(e) as being anticipate by Grahn. Grahn teaches a sensor assembly having three axes embedded in an elastomeric material, i.e., tire, (col. 1, lines 30-34 & col. 5, lines 5-26-31), having a hardness between 50 and 70 Shore A (col. 9, lines 59-63), the assembly comprising: a first pair of piezoelectric strain (col. 6, lines 5-7) sensors 52 disposed along a first pair of respective planes that intersect, said first sensors detecting

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a force in a first direction (col. 12, lines 1-4), wherein a first pair of axes are generally oriented at a first angle  $\theta$  with respect to the first direction (Fig. 1A); a second pair of piezoelectric strain (col. 6, lines 5-7) sensors 52 disposed along a second pair of respective planes that intersects, said second sensors detecting a force in a second direction (col. 2, lines 5, 6), wherein a second pair of axes are generally oriented at a second angle  $\theta$  with respect to the second (Fig. 1A) direction 1A; wherein the first and second angles are equal; wherein the first and second pair of sensors are disposed on first and second opposed faces of a pyramid-shaped body (Figs. 5, 5A, 5D, 6, 7B-7D, 17); the body is made of the same or different material as the elastomeric material (col. 8, lines 60-68); the first and second pairs of sensors are coupled to the body with adhesive; and wherein the force measured in the first direction is equal to the difference between the outputs of said first sensors, and the force measured in the second direction is equal to the difference between the outputs of said second sensors (col. 12, lines 7-66 bridging col 13, lines 1-50); and the forces on said first and second sensors equals a force in a third direction (col. 13, lines 51-67 bridging col. 14, lines 1-34); a Wheatstone bridge circuit (Fig. 12). The steps in the claimed

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method of claims 30-68 are deemed to be clearly anticipated by the functions of the structure of the apparatus discussed above.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grahm. Claims differ from Grahm above with the recitations of parallel plate sensors and that the sensors are at an angle of 45°. Grahm discloses strain sensors (col. 7, lines 1-4). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporate parallel plate capacitor sensors in Grahm for the purpose of improving the sensing capabilities of a sensor. Next, Grahm discloses sensors that can be positioned at different angles (col. 7, lines 1-4). Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experiment. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99


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F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have performed routine experimentation in the modified Grahn to arrive with sensors which are at an angle of 45° for the purpose of improving the sensing capabilities of a sensor.

7. Any inquiry concerning this or earlier communications from the examiner should be directed to Charlene Dickens whose telephone number is (703) 305-7047. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center's receptionist whose telephone number is (703) 308-1782. The fax numbers for the Center are (703) 305-3431 and (703) 305-3432.



cd/dickens  
December 2, 2001

  
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